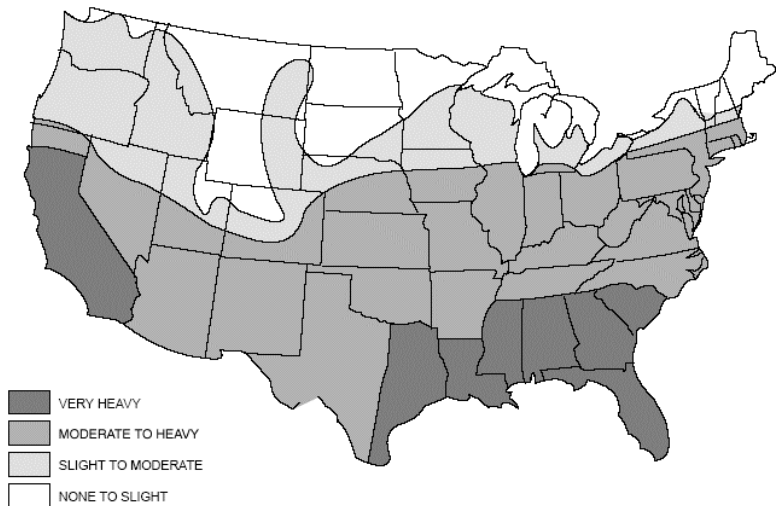


Nontoxic Termite Prevention

Eradicating termites is often both a toxic and expensive proposition. In the U.S., termites cause more monetary damage to homes than fires, storms, and earthquakes combined. Unfortunately for homeowners, insurance carriers consider most pest infestations to be maintenance issues, leaving the bill for treatment and repair to the homeowner. Making matters worse is the reality that conventional treatment methods use toxic chemicals. However, many termite infestations can be avoided in the first place: numerous low-cost, common-sense, chemical-free design and construction measures can physically hinder termites and other pests from entering a home in their search for wood and wood-based materials to eat.



Subterranean Termite Infestation Probability

Source: 2000 International Residential Code

While subterranean, dampwood, and drywood termites are unique in their nesting habits, food sources, and moisture requirements, the following measures should significantly reduce the possibility of infestations from any type. As a general rule, implement measures that eliminate excess moisture, available food, and physical termite pathways.

Foundation Detailing

Control moisture and make it difficult for termites to access wood and cellulose-based building materials.

Special soil

Before pouring the foundation, install a sand barrier along the length of the footing to a minimum depth of 4 inches and width of 20 inches. Use uniformly graded sand with a 4 to 16 grit (4.75mm to 1.18mm) particle size. Termites have difficulty crawling through and constructing stable tunnels in this material.

- For more details, see: www.ces.ncsu.edu/depts/ent/notes/Urban/termites/barriers.htm
- Granitgard (www.granitgard.com) is one proprietary system, currently available only in Australia, that includes a sand barrier component.

Finish grade

Pre-plan to ensure that at least 12 inches of space is maintained between the finish grade of the soil and bottom of the exterior wall finish. Grade the soil away from the home to



provide a minimum 1:20 slope within 10 feet of the entire perimeter. This can be challenging to accomplish for existing homes; special measures such as French drains might be required to keep water away from the foundation.

Termite shields

For new construction or additions, install continuous sheet metal flashing between the concrete stem wall and sill plate. Extend the flashing beyond each edge of the wall and bend it down at an angle (extend two inches out and two inches down; the angle length should be at least 2.5 inches.) Termites crawling up the wall can't navigate around the sharp edge of the flashing in their search for wood.

For best durability, use a highly corrosion-resistant metal such as copper or stainless steel. Aluminum and galvanized steel are less expensive but not as durable. Caulk lapped pieces and solder joints to ensure a continuous barrier.



Sheet Metal Termite Shield

Source: Timothy Myles, University of Toronto

- Case study: www.utoronto.ca/forest/termite/trmtsh%7E1.htm

Sealed penetrations

Think like a termite! Seal cracks and other potential termite pathways with caulk. Where a concrete slab or wall might shrink away from adjacent surfaces, pipes, or other penetrations as it cures, install a product like Termimesh (www.termi-mesh.com) before pouring to seal gaps.

Vent screens

Install small-mesh screens over crawlspace foundation vents to discourage entry of pests and winged drywood termites. Don't choose a very fine mesh that will hinder ventilation.

Structural Materials & Exterior Finish

Use durable, termite-proof or termite-resistant materials and incorporate moisture control measures.

Structural system

Termites eat wood. In especially high-risk areas, consider designing a structural system with wood-free materials such as metal studs or insulating concrete forms (ICFs). Or consider using pre-treated wood materials or treating the lowest three feet of wood with low toxicity borate-based wood preservatives. Products include:

- Bora-Care, www.nisuscorp.com
- BOR-RAM, www.sostram.com
- BluWood, www.conradfp.com



Roofing and walls

Install small-mesh screens over attic vents to discourage entry of pests and winged drywood termites. Don't choose a very fine mesh that will hinder ventilation.

Design minimum 16 inch roof overhangs with gutters. Direct downspouts at least 2 feet away from the foundation.

Install durable, termite-proof and noncombustible roofing and wall finishes, such as fiber-cement siding. Thoughtfully detail flashing and penetrations and ensure quality workmanship.

Maintenance

Ensure special construction details are maintained, keep moisture levels low, and regularly inspect for termites.

Repairs and remodels

Ensure continuity of physical barriers during repairs and remodels. Fix roof and plumbing leaks promptly.

Ventilation

Ensure the attic and crawlspace are well ventilated and that vents are not obstructed.

Site and landscaping

Ensure that landscaping is kept at least 3 feet away from the foundation. Do not store anything against exterior walls. Store wood piles as far from the house as possible; raise those piles off the ground and keep them covered. Remove dead trees or other rotted wood promptly.

Do not allow untreated wood to directly contact soil or concrete. Use stand-off post bases, plastic or corrosion-resistant metal fasteners and dividers, or other methods as needed to separate wood to concrete connections such as deck posts and stair stringers.

Inspection

Develop a systematic checklist to inspect for termite infestation semiannually.

Treatment

If prevention fails, low-toxicity methods can usually be used to eradicate termites depending on the type and extent of infiltration. These methods include heat, freezing, electricity, microwave, spot treatments, and termite baits. For service providers that offer such treatment methods, explore the **Bio-Integral Resource Center's** website at www.birc.org. This Bay Area non-profit specializes in finding non-toxic and least-toxic integrated pest management (IPM) solutions.

With appropriate design, construction, and maintenance, you should be able to keep termites at bay in California climates—ultimately protecting your or your clients' home, health, and bank account.



Green Building Guidelines References

This strategy may correspond to specific measures, points, or credits in various Green Building Guidelines and Rating Systems:

New Home Construction Green Building Guidelines (Build It Green)

- B4 – Design and Build Structural Pest Controls
- D10 – Install Overhangs and Gutters
- E3 – Use Durable and Noncombustible Siding Materials

Home Remodeling Green Building Guidelines (Build It Green)

- B3 – Design and Build Structural Pest Controls
- D7 – Install Overhangs and Gutters
- E3 – Use Durable and Noncombustible Siding Materials

Multifamily Green Building Guidelines (Build It Green)

- C11 – Moisture Shedding and Mold Avoidance

LEED-H Rating System (U.S. Green Building Council)

- ID2 – Durability Management Process
- SS5 – Nontoxic Pest Control
- EQ1 – ENERGY STAR with IAP
- EQ3 – Moisture Control

To learn more about these [Green Building Guidelines & Rating Systems](#), visit:

www.builditgreen.org/guidelines

Resources

Department of Entomology, North Carolina Cooperative Extension – practical approaches for new construction:

www.ces.ncsu.edu/depts/ent/notes/Urban/termites/pre-con.htm

Statewide IPM Program, Agriculture and Natural Resources, University of California – how to identify, manage, and prevent termites:

www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7415.html

State of California Structural Pest Control Board – verify a professional license and search for official inspection reports

www.pestboard.ca.gov

Bio-Integral Resource Center – specializes in finding non-toxic and least-toxic IPM solutions:

www.birc.org

For current product, manufacturer, and supplier information, search the Green Product Directory: www.builditgreen.org/products.



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